

# Blue and Red Light Therapy for Acne Vulgaris



“Blue Light gets at the core of what causes acne eruptions: *P. acnes*, the bacterial responsible for causing acne inflammation, pumps out tiny molecules called porphyrins. When those porphyrin are exposed to certain wavelengths of light, they produce free radicals that kill the bacteria.

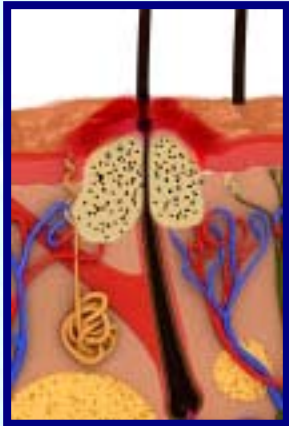
Without *P. acnes* around to cause inflammation, acne clears up.”

-American Academy of Dermatology

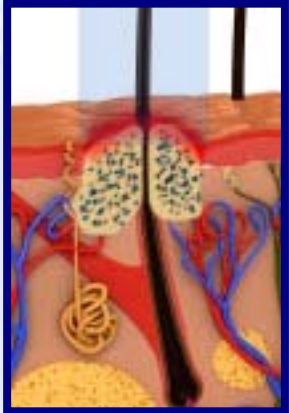
# The Role of Photo Therapy for the Treatment of Acne

- Intensifies immune functions (Blue Light) and increases cellular activities to exert an anti-inflammatory effect (Red Light).
- Stimulates fibroblast activity, attachment and synthesis of collagen and procollagen, and growth factor production.
- Effective means of treating acne vulgaris of mild to moderate severity, with no significant adverse effects.
- Enhances healing of acne lesions to help prevent acne scars from forming.

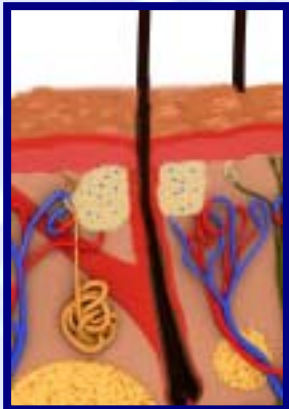
# Process of BLUE Light Therapy



STEP 1- *P. acnes* bacteria absorbs blue light (417nm).



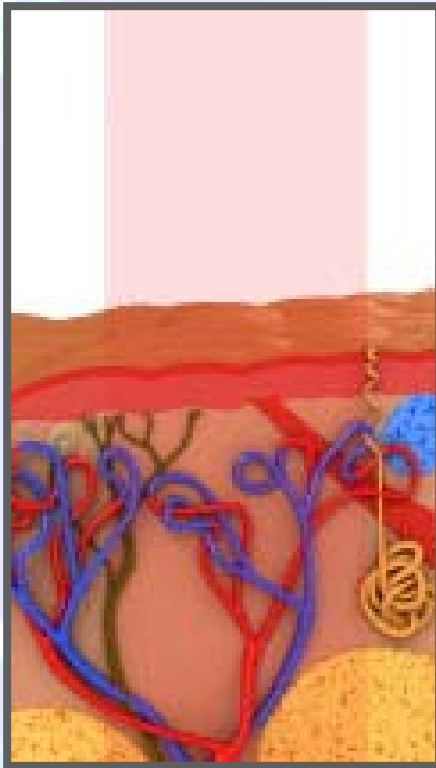
STEP 2- The blue light reacts with the intracellular photosensitizer protoporphyrin IX producing singlet oxygen and free radicals.



STEP 3- Finally Singlet oxygen and free radicals destroys *P. acnes* (*specific to the acne lesion*).

# Process of RED Light Therapy

**STEP 1-** Red light energy is absorbed primarily by the blood vessels within the dermis and subcutaneous tissue layers of the skin.



**STEP 2-** Once absorbed, the red light stimulates the mitochondria within the cells and begins to convert the photon energy into biochemical energy known as ATP.

**STEP 3-** A boost in ATP production increases cellular activity and mitosis which diminishes inflammation and helps to restore normal cellular function.